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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/829,104	04/21/2004	John H. Rosenfeld	H1799-00219	6484
23409 7590 02/22/2008 MICHAEL BEST & FRIEDRICH LLP 100 E WISCONSIN AVENUE Suite 3300 MILWAUKEE, WI 53202				
EXAMINER				
DUONG, THO V				
ART UNIT		PAPER NUMBER		
3744				
MAIL DATE		DELIVERY MODE		
02/22/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/829,104

Applicant(s)

ROSENFELD ET AL.

Examiner

Tho v. Duong

Art Unit

3744

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6-19,21-23,26,29,30,34-38,41 and 42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-19,21-23,26,29-30,34-38,41 and 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Applicant's Argument filed 6/29/07 is acknowledged. Claims 1-2,6-19,21-23,26,29-30,34-38,41 and 42 are pending.

Response to Arguments

Applicant's arguments with respect to claims 19,21 and 26 have been considered but are moot in view of the new ground(s) of rejection.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-2,6-19,21,26 and 35-37 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. 6,994,152 in view of Koichi (JP 2000055577A). Claims 1-20 of Patent No. 6,994,152 substantially discloses all of applicant's claimed limitation except for the limitation that the wick comprises a first species

particles and second species particle, each forms a homogenous layer. Koichi discloses (figures 3-5) a wick structure comprises of two homogenous layers (8,18), wherein each layer is formed of particle species for a purpose of enhancing the wicking power of the wick structure. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Koichi's teaching in the Patent for a purpose of enhancing the wicking power of the wick structure.

Claims 1-2,6-19,21,22-23,26 and 34-38 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. 7,028,759 in view of Koichi (JP 2000055577A). Claims 1-20 of Patent No. 7,028,759 substantially discloses all of applicant's claimed limitation except for the limitation that the wick comprises a first species particles and second species particles, each forms a homogenous layer. Koichi discloses (figures 3-5) a wick structure comprises of two homogenous layers (8,18), wherein each layer is formed of particle species for a purpose of enhancing the wicking power of the wick structure. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Koichi's teaching in the Patent for a purpose of enhancing the wicking power of the wick structure.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claimed subject matter of "said brazing compound comprises six percent by

weight of finely divided copper/gold brazing compound” renders the scope of the claim indefinite since it is not clear if this six percent is the percent of the copper/gold brazing compound over the total brazing compound or over the capillary structure.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2,6,8-11, 17,19,21 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshizumi (JP 359024538A). Yoshizumi discloses (figures 1-4) a heat pipe comprising a wick (2,4) disclosed on at least one of the internal surfaces and comprising a plurality of first species copper particles (2, located on bottom) and second species copper particles (2, located on top) joined together by a silver alloy brazing compound such that fillets (4) of the brazing compound are formed between adjacent ones of the plurality of copper particles so as to form a network of capillary passageways between the particles; the first species and second species of particles are each disposed within the capillary structure in homogenous layers (top and bottom layers); the spherical copper powder (2) inherently has a melting point as claimed and the silver has a melting point lower than the melting point of copper. Regarding claim 26, a heat pipe as known in the art, is to have a hermetically sealed and partially evacuated enclosure so that water or other two phase liquid contained in the heat pipe to perform a cycle of evaporation and condensation. Evidence is shown in Katayama (US 3,921,710). Applicant is

reminded that the examiner must interpret the limitation as broadly as it reasonably allows. Therefore, in this case, the first and second species particles are interpreted to be of the same size.

Claims 1-2,6,8-11,14,17,19,21 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Staudhamer (US 3,762,011). Staudhamer discloses (figures 1-2) a heat pipe comprising a wick (18) disclosed on at least one of the internal surfaces and comprising a plurality of first species copper particles (20) and a second species copper particles (20) joined together by a polymer brazing compound such that fillets (24) of the brazing compound are formed between adjacent ones of the plurality of copper particles so as to form a network of capillary passageways between the particles; the first species and second species of particles (20) are disposed within the capillary structure in homogeneous layers (figure 2 shows at least 4 layers); the spherical copper powder (20) inherently has a melting point as claimed and the polymer has a melting point lower than the melting point of copper; and the powder has a mesh size in the range of 50-200. Applicant is reminded that the examiner must interpret the limitation as broadly as it reasonably allows. Therefore, in this case, the first and second species particles are interpreted to be of the same size.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yoshizumi (JP 359024538A) or Staudhammer (US 3,762,011). Both of Yoshizumi and Staudhammer substantially disclose all of applicant's claimed invention as discussed above except of the limitation of the braze compound comprises particles of about minus three hundred and twenty five mesh prior to melting and smaller than the metal particle. Clearly, the brazing compound of particle shaped and of such the claimed size is part of the intermediate product before melting or an intermediate step of method of forming the device (melting) because in the final product of the capillary structure, the brazing compound is no longer in particle shape but fillets. Therefore, the examiner will treat these limitations as part of a method of forming the device, "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In this instant case, the capillary structure in the product by process claim is the same as or obvious from the capillary structure of Yoshizumi of Staudhammer, the claim is unpatentable even though the prior capillary structure was made by different process such as coating.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizumi in view of Borchert (US 4,101,691). Yoshizumi substantially discloses all of applicant's claimed invention as discussed above except for the limitation that the brazing compound is from about two to ten by weight percent of the capillary structure. Borchert discloses (column 4, lines 52-55

and column 5, lines 30-40) a capillary structure is formed of braze material and a plurality of metal particles wherein the braze material constitutes of about 10% by weight of the capillary structure so as to provide an adequate brazing material to form a braze metal coated mass. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Borchert's teaching in Yoshizumi's device for a purpose of providing an adequate brazing material to form a braze metal coated mass.

Claims 22-23,34,41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizumi in view of Corman (US 3,828,849). Yoshizumi substantially discloses all of applicant's claimed invention as discussed above except for the limitation of a plurality of vents being defined through the capillary structure, fins projecting outwardly from an outer surface of the tubular enclosure and a base sealing an end of the enclosure. Corman discloses (figures 1-3 and column 2, line 65- column 3, line 1) a heat pipe that has a base (15,16) for sealing the enclosure, a plurality of fins (19) for increasing the heat transfer surface area of the heat pipe and plurality of cylindrical vents (28) defined through a capillary structure (25) for the purpose of providing a low impedance path to the passage of vapor there through so that the heat transfer coefficient of the heat pipe is increased. Since Yoshizumi and Corman are both from the same field of endeavor and/or analogous art, it would have been obvious to one having ordinary skill in the art, at the time the invention was made to use Corman's teaching in Yoshizumi's heat pipe for the purpose of providing a low impedance path to the passage of vapor there through so that the heat transfer coefficient of the heat pipe is increased. Regarding claim 13, applicant has not disclosed that having a particular material of aluminum and magnesium would solve any stated

problem or is for any particular purpose, applicant has not disclosed any criticality for having the claimed material. Moreover, it appears that the wick structure would perform equally well with any brazing compound that has less melting temperature than the metal particles. Accordingly, the use of aluminum and magnesium is deemed to be a design consideration, which fails to patentably distinguish over the prior art of Corman and Yoshizumi.

Claims 22-23,34,41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Staudhammer et al. (US 3,762,011) in view of Corman et al. (US 3,828,849). Staudhammer substantially discloses all of applicant's claimed invention as discussed above except for the limitation of a plurality of vents being defined through the capillary structure, fins projecting outwardly from an outer surface of the tubular enclosure and a base sealing an end of the enclosure. Corman discloses (figures 1-3 and column 2, line 65- column 3, line 1) a heat pipe that has a plurality of cylindrical vents (28) defined through a capillary structure (25) for the purpose of providing a low impedance path to the passage of vapor there through so that the heat transfer coefficient of the heat pipe is increased. Since Staudhammer and Corman are both from the same field of endeavor and/or analogous art, it would have been obvious to one having ordinary skill in the art, at the time the invention was made to use Corman's teaching in Staudhammer's heat pipe for the purpose of providing a low impedance path to the passage of vapor there through so that the heat transfer coefficient of the heat pipe is increased. Regarding claim 18, applicant has not disclosed that having a particular material of aluminum and magnesium would solve any stated problem or is for any particular purpose, applicant has not disclosed any criticality for having the claimed material. Moreover, it appears that the wick structure would perform equally well with any brazing compound that is less melting

temperature than the metal particles. Accordingly, the use of aluminum and magnesium is deemed to be a design consideration, which fails to patentably distinguish over the prior art of Corman and Staudhammer.

Allowable Subject Matter

Upon filing a terminal disclaimer to overcome the double rejection,

Claims 29 and 30 are allowed.

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tyler J. Cheryl can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tho v Duong/
Tho v Duong
Primary Examiner
Art Unit 3744

/T. v. D./
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2/18/08